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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,010	04/06/2001	David L. Patton	82462RLO	6397

7590 07/01/2004  
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EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/828,010

Applicant(s)

PATTON ET AL.

Examiner

Shefali D Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment was received on April 26, 2004.
2. Amendments to the drawings have been accepted.
3. The 112 2<sup>nd</sup> paragraph rejection made to claims 1 and 4 has been withdrawn.

### ***Response to Arguments***

1. Applicant's arguments, see remarks (pages 5-6), filed on April 26, 2004, with respect to the rejection(s) of claim(s) 1-10 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ferguson et al. (US 6,615,648).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 1-2, 4, 6, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Ferguson et al. (US 6,615,648) (hereinafter, "Ferguson").

With regard to **claim 1** Ferguson discloses a method for capturing at least one image of an existing man-made structure (i.e., road surface, col. 4 lines 66-67) and for detecting the presence of failure(s) in such existing man-made structures (col. 5 lines 1-6) comprising: (a) providing a detectable material on a surface or in an existing man-made structure so that portions of the detectable material will be present in the failure(s) of the existing man-made structure that accentuates the failure (binder material in the road surface which is detectable for any failure (i.e., cracks) in the road. Col. 6 lines 17-23); (b) providing an image sensor (i.e., digital camera 104, See, camera (1) at col. 5 line 47, camera interface data distributor (3) at col. 7 line 40) and which captures at least one image of the existing man-made structure and identifies failure(s) due to the existence of the detectable material in the failure(s) to provide at least one digital image (See, col. 6 lines 30-37 and 58-66); and (c) processing the captured digital image(s) to provide a visual image of the existing man-made structure to determine the presence of failure(s) in the existing man-made structure (image is being processed by the processing software at col. 11 lines 21 to col. 12 lines 1-10).

With regard to **claim 2** Ferguson discloses the image sensor being spaced remotely (See, user interface at col. 10 lines 58-61, see Fig. 9) from the existing man-made structure and further including: (d) sending captured processed digital images with detected failures to a customer (alerting users, workers, customers, etc. by reporting the data at col. 13 lines 19-22, also see, Data summarizing and reporting at col. 13 line 24).

With regard to **claim 4** Ferguson discloses the digital image(s) being captured by a capture device which is located in a fixed structure position above a ground location (the camera is mounted on a vehicle which is clearly above the ground as seen in Fig. 8) (or in a moving structure including an aircraft or satellite).

With regard to **claim 6** Ferguson discloses the detectable material (binder material in road surface, col. 6 lines 17-24) on that interacts with incident radiation (i.e., beam) to cause radiation from the failure in the existing man-made structure to be detected by the image sensor (See, col. 6 lines 39-53 and 64-66).

With regard to **claim 8** Ferguson discloses the detectable material is included in a liquid solution or solid solution, which is distributed on the failure in the existing man-made structure (binder material at col. 6 lines 17-23).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 5, 7, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson (US 6,615,648).

With regard to **claim 3** Ferguson discloses digital processing. Ferguson does not expressly disclose the digital image processing including comparing previously captured digital images with newly captured digital image(s) to determine variations in the captured digital

image(s) at predetermined coordinates which indicate a potential failure in the existing manmade structure. Ferguson discloses comparing the digital image to a threshold to determine the presence of a failure (i.e., cracks). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have a previously captured image rather than a threshold value for comparing purpose.

With regard to **claim 5** Ferguson discloses the image processing including storing in memory a representation of different failures (i.e., longitudinal cracks and traverse cracks, col. 11 lines 28-45) to be detected and comparing the captured digital image with the failures to determine the presence of a failure, and location of such failure (See, col. 11 lines 52-55).

With regard to **claims 7, 9 and 10** Ferguson discloses detectable material as mentioned above in claim 1, 6, and 8. However, Ferguson does not disclose detectable material being encapsulated dyes, phosphors, lanthanide, halogen, halide, or cholesteric characteristics. It would have been an obvious matter of design choice to modify Ferguson's reference by having the detectable materials included herein, since applicant has not disclosed that having this detectable material solves any stated problem or is for any particular purpose and it appears that having detectable materials of encapsulated dyes, phosphors, lanthanide, halogen, halide, or cholesteric characteristics would perform equally well as the coating material used to detect failure(s) in Ferguson's invention.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,656,786; US 4,653,316; US 5,042,055.

DeVault, "Robotic System for Underwater Inspection of Bridge Piers," IEEE, September 2000, pp. 32-37.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**DANIEL MARIAM**  
**PRIMARY EXAMINER**  
June 23, 2004

Shefali D Patel  
Examiner  
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